

UND Campus IT Plan

July 2006

IT INFRASTRUCTURE

1. UND IT contact data
 - a. Dorette Kerian
 - b. Director Information Technology Systems & Services and Interim CIO
 - c. dorettekerian@mail.und.edu
 - d. 701-777-3880

2. **IT Overview** – Information technology impacts the instruction, research, infrastructure, student services and administrative areas of the University. Information technology is a tool, which enables and enhances both the primary mission of the institution and the support services underlying that mission. Faculty deliver classes, or portions of classes, in 'smart' classrooms, via the Web using rich content and collaboration tools and using classroom and desk-top video conferencing. Information technology allows linking faculty with distant students, agencies, preceptors and potential students. The university has increased the number of distance courses and programs available online and will continue that growth.

Experiential learning and discovery help to enhance and improve learning. Information technology is used by students, faculty and researchers throughout the University to gather information, solve problems, prepare and present written and oral reports, and conduct quantitative and qualitative data analysis. Servers host discipline specific applications such as mathematical, graphics and visualization programs and a wide range of databases to enhance students' understanding and learning. The Blackboard learning management system allows faculty to organize learning materials and interactions for students. Students and researchers in fields such as planetary science and astronomy use technology in remote sensing and data analysis. Instruments, such as telescopes, are located in most effective locations and, with remote operation and data gathering, the need for students and researchers to travel to the instrument is minimized.

The University libraries use computers, the Internet and other information technology to acquire, and catalog materials for library collections and to provide access and deliver information services to students, faculty, staff and other users. Students, in those departments who require student ownership of laptop computers, have improved access to class notes, resources, and expanded learning opportunities both in and out the classroom. Electronic Library information resources in the form of bibliographic databases, full-text journals and books are extensively available to students, faculty and other constituents, and appropriate search engines and are provided for use in educational and research applications. UND is looking at how to improve information delivery since Google and Yahoo have set expectations that resources will be easy to access and use and readily available from mobile devices.

Students, faculty and staff use e-mail and other collaboration technology to communicate with colleagues, to collaborate, and to distribute information widely. Offices and departments throughout the University develop and enhance Web sites for current and prospective students, faculty and staff and the public. A planned Portal will aid university members in their selection of applications, activities and interests. Career Services has programs to bring students and prospective employers together via Web sites. Some federally mandated accommodations for students with disabilities are met with information technology.

Information technology provides central monitoring and energy management functions throughout the University's major building and facilities providing significant reductions in utility costs as well as increased safety and efficiency. Telephone services are provided throughout the UND campus, to GF airport facilities and the Fargo Medical Education Center; VoIP pilot projects are in place. Planning is underway to integrate the campus ID card with a new card based door access system.

In order to support the technology advances listed above networking is being updated for greater bandwidth and to support integrated voice, video and data. Campus building internal wiring between and among buildings has been upgraded to allow for a Gigabit networking throughout campus through changes in electronic equipment. Wireless access was expanded to shared public areas such as the Memorial Union and Chester Fritz Library. Wireless service will be expanded to campus wide coverage over the next few years. Authentication and security are high priorities for all network based services given the demand for a highly reliable, highly available, and secure network.

3. Technology goals and objectives: The following section is excerpted from the UND Building on Excellence, Strategic Plan 2005.

Optimize the use of information technology to improve student learning, research, and the administration of the University.

Goal One: UND provides coordinated information technology services and applications supporting learning, instruction, research and services, and provides for efficient, secure, and effective operation of the University.

Indicators of Success:

- The University is recognized as being efficiently run.
- The University has an exceptional array of Internet-based course and degree offerings.
- The University is a recognized leader (e.g., "Most Wired/Connected") in the application of technology.

Action Strategies: In order to accomplish this goal, UND will, generally speaking, **(1)** determine information technology (IT) requirements, establish IT priorities, and seek funding for IT; **(2)** determine real costs of all IT services; **(3)** enhance coordinated, secure, and reliable IT services; **(4)** continue to identify and develop appropriate policies and standards; **(5)** establish a plan and timeline for enhancing the campus information access system; **(6)** improve IT support for providing storage and easy access to information for research and instruction; and **(7)** ensure that all incoming students have adequate levels of computer proficiency.

Goal Two: UND has first-rate, leading-edge infrastructure (including voice, video, and data network, network storage and research computing).

Indicators of Success:

- Over 95 percent of classrooms, offices, and research facilities have gigabit network access and, on a longer timeline, campus access to Internet increases to 10 gigabit per second (20 times current).
- All public-access computer labs, including wireless labs, require an authentication for access.
- At least two pilot projects using VoIP are implemented.
- Security breaches occur very rarely, if at all.

Action Strategies: In order to accomplish this goal, UND will, broadly speaking: (a) provide a high level of security for the campus network; (b) complete gigabit access for classrooms, offices and research facilities campus wide; (c) provide a 10+ gigabit per second access from campus to the Internet; (d) strive for 99.999 percent network reliability; (e) update and extend wireless infrastructure across the campus; (f) provide a standard for IT infrastructure for new buildings on the UND campus; and (g) assist with the use of video conferencing for research and instructional purposes.

Goal Three: Optimized use of information technology is achieved through the coordination and collaboration of UND's IT organizations.

Indicator of Success:

- UND uses of IT are widely recognized as well-coordinated and efficient.

Action Strategies: In order to accomplish this goal, UND will enhance sharing of IT expertise across campus through activities of the UITC and its sub-councils as it continues to review the roles and responsibilities of the CIO in relation to all IT departments.

Goal Four: The University has a current information technology plan demonstrating continuous progress toward implementation.

Indicators of Success:

- A plan is in place and updated annually.
- Progress toward implementation is tracked and reported regularly to UPBC/President.

Action Strategies: In order to carry out this goal and to ensure that it serves the intended purpose, UND will:

Annually update its IT plan and assess progress, publicize the plan to the University community and others, develop an evaluation plan, including tools to measure progress; ensure campus IT planning includes standards and policies to comply with mandates, and compare UND's IT position and progress with peer institutions using benchmarks from peer institutions. UND will also establish a Web site for the Office of the CIO.

Goal Five: Enhance the University's position as a leader in the creation and application of information technologies to enrich and extend learning and research.

Indicator of Success:

- National surveys and ratings identify UND as a leader in the use of IT in teaching, learning, research, service, and operations.

Action Strategies: In addition to all of the above, the University will:

1. Sponsor a regional conference on information technology applications. (CIO, UITC: annually)
2. Identify courses and programs for online course development in response to market needs identified on or off campus. (CIO, VPAA, UITC: ongoing)
3. Enhance capacity for research using high-performance computing. (CIO, UITC, VPR: ongoing)
4. Work with departments to ensure that students have appropriate IT exit skills at graduation. (CIO, VPAA, UITC: ongoing)

5. Identify appropriate methods to enable students to acquire specified IT skills appropriate to their programs of study and professions. (CIO, ITC: ongoing)
6. Consider establishing a fund for campus initiatives that encourages faculty, staff, and students to create, use, and evaluate new and underused technologies. (Ca: AY06)
7. Assist departments in expanding specialized IT-related curricula and research. (CIO: ongoing)
8. Increase the number of programs offered at a distance by 10 percent until an optimal level is reached. (See **Priority Action Area E: Enrollment Management**)
9. Establish technologies and applications for multi-site, content-rich collaboration. (CIO, UITC: ongoing)
10. Sustain support for faculty development of technology-enhanced courses. (CIO, UITC: ongoing)
11. Review faculty development services across the campus and plan for enhancing these services. (CIO, VPAA, VPFO: ongoing)
12. Write a plan for evaluating and remediating IT entry and exit skills for students. (CIO, VPAA, UITC: AY06)
13. Sustain and enhance library applications such as online, full-text search and retrieval. (CIO, UITC, DL: ongoing)
14. Through the UITC, in consultation with appropriate research entities across campus, identify IT support services needed by researchers. (CIO, UTIC, VPR: ongoing)
15. Develop a plan for Faculty Technology Scholars, recognizing their work with IT in teaching and learning. (CIO, Ca: AY06)
16. Assess the use of IT in the improvement of learning and identify additional ways to improve learning through use of technology. (CIO, VPAA: ongoing)
17. Work with the Research Council to plan for and support campus research computing. (CIO, VPR, VPAA: ongoing)

4. Budget Information

Account Code	Account Code Desc	05-07 Biennium (FY06 plus FY07)	07-09 Request (05- 07 times escalation on all)	09-11 Estimate (07- 09 times escalation on all)
	Salaries-appropriated	\$ 5,189,370	\$ 5,448,839	\$ 5,721,281
	Salaries-local	\$ 3,568,318	\$ 3,746,734	\$ 3,934,070
	Salaries-grant	\$ 746,011	\$ 783,311	\$ 822,477
510000	Salaries and Wages-total	\$ 9,503,699	\$ 9,978,884	\$ 10,477,828
516000	Benefits (est at 30%)	\$ 2,851,110	\$ 2,993,665	\$ 3,143,348
611000	Professional Development	\$ 78,857	\$ 82,800	\$ 86,940
521000	Travel (As relates to Professional Dev.)	\$ 118,286	\$ 124,200	\$ 130,410
602000	IT Telephone	\$ 6,299,812	\$ 6,614,802	\$ 6,945,542
531000	IT Software/Supplies	\$ 4,315,871	\$ 4,531,664	\$ 4,758,248
581035, 581040, 581045, 591070, 621230, 621235, 623090	IT Contractual Services and Repairs	\$ 2,971,642	\$ 3,120,224	\$ 3,276,235
551000	IT Equipment under \$5000	\$ 3,309,180	\$ 3,474,639	\$ 3,648,370
551000693000	IT Equipment \$5000 and over	\$ 577,217	\$ 606,078	\$ 636,382
0	IT Account Code Subtotal	\$ 17,473,721	\$18,347,407	\$ 19,264,778
	Total	\$ 30,025,673	\$31,526,956	\$ 33,103,304
Funding Source	Funding Source Desc			
	Appropriated	\$ 11,095,359	\$11,650,127	\$ 12,232,634
	Local	\$ 16,756,855	\$17,594,698	\$ 19,264,778
	Grant	\$ 2,173,458	\$ 2,282,131	\$ 2,396,238
		\$ 30,025,673	\$31,526,956	\$ 33,103,304
Number of IT FTEs for 2006				
	i. Central IT FTEs:	32.5		
	ii. External IT FTEs:	82.5		
	iii. Total of 3 above	115.0		
Number of vacant IT positions				
	iv. Central IT:	1.5		
	v. External	8.6	(Excludes Telecom vacant position)	
	vi. Total of 3 above	10.1		

NDUS Project Business Case

Project Name: Campus Electronic Integrated Communications Infrastructure

Name of Contact or Submitter: Dorette Kerian

Institution: University of North Dakota

Business Unit/Program Area: Information Technology Systems and Services

Type of Project:

New Initiative

Major enhancement/upgrade

Application replacement

Ongoing Initiative

Date: June 9, 2006

To be implemented in FY 2007, FY 2008, and FY 2009, depending on funding

Version: 1

Project Description:

Briefly describe the Project Objectives

Secure, highly reliable and available electronic integrated communications infrastructure

Project Priority:

Describe the priority this project has related to other projects you are submitting

Highest

Business Need/Problem:

*Briefly describe the **Need** or **Problem** driving the proposed project and the identification of the Customers and anticipated Consumers of the project's product*

Teaching, learning, research and administration are all highly reliant on the electronic communication in all forms and 24X7. The integrated infrastructure is used by members of the university community as well as alumni, parents, business partners and the general public.

Solution:

Briefly describe the product of the project that would resolve the Business Need or Problem.

1. Campus gigabit to classrooms and offices with multi-gigabit backbone
2. Standards based and central managed wireless network access deployed across campus.
3. Security and management tools to prevent misuse and assure availability.
4. Collaboration to assure availability for all communication.

Consistency/Fit with Organization's Mission:

Describe how the project is consistent with the agency's mission and/or strategic plan. Please provide rationale if it is not.

UND strategic plan Goal Two: UND has first-rate, leading-edge infrastructure (including voice, video, and data network, network storage and research computing).

Anticipated Benefits:

List all **Anticipated Benefits** resulting directly from the project. Specify the ways there will be measurable improvement of new capabilities?

- Annual reports indicate additional research, enhanced courses and programs, and student and faculty services with no reports of integrated communication limitations.
- Students express satisfaction with availability of wireless access.
- Electronic communication security breaches occur very rarely, if at all, and impact is minimized.

Impact of Not Implementing the Project:

Briefly explain the impacts of not implementing this project. If not implemented, what are the impacts on the organization? If not implemented, what are the impacts on other projects, systems, and/or business processes. What benefits will be missed by not doing this project?

- Research projects may be incomplete affecting future funding. University members may be unable to access resources and/or express dissatisfaction with the performance of that access.
- Efficiencies in combining communication infrastructure may be missed. Students may not choose to enroll in a university that cannot provide an expected level of technology availability.

Project Budget:

Provide a **Budget** for the project using the format below. Include any special sources for project funding. Are there grants that will be applied for? Are federal funds available? Is a charge-back to the Customers planned? For example, the project may be funded by a specific line item in the budget.

Project Budget Format:

- A. Funding Source(s) Undetermined
- B. Expense Account Codes to be included are:
 - i. 510000 Salaries and Wages
 - ii. 516000 Benefits
 - iii. 602000 IT Telephone
 - iv. 531000 IT Software/Supplies -- \$100,000
 - v. 581035, 581040, 581045, 591070, 621230, 621235, 623090 IT Contractual Services and Repairs -- \$175,000
 - vi. 551000 IT Equipment under \$5000 -- \$500,000
 - vii. 693000 IT Equipment \$5000 and over-- \$425,000
- C. Project costs not reported in the above IT related account codes (include in-kind costs).
Salaries, Wages and Benefits \$60,000

Project Risks:

Identify any risks associated with implementing this project and explain how the risks will be mitigated.

That outages can be caused by implementing changes would be mitigated by planning and testing.

Changes in technology could make some components of an upgrade obsolete. Research and consultation with vendors, education associations and peers prior to selection and purchase should provide for longest life products.

Partial funding could be mitigated by planning for parts of the upgrade that can provide a benefit to the campus should other parts not be completed.

NDUS Project Business Case

Project Name: Identity Management

Name of Contact or Submitter: Dorette Kerian

Institution: University of North Dakota

Business Unit/Program Area: Information Technology Systems and Services

Type of Project:

New Initiative

Major enhancement/upgrade

Application replacement

Ongoing Initiative

Date: June 9, 2006

To be implemented FY 2007 and FY 2008

Version: 1

Project Description:

Briefly describe the Project Objectives

Infrastructure upgrades to enhance the ability to identify, authenticate, authorize and provision accounts for users of UND IT services and resources.

Project Priority:

Describe the priority this project has related to other projects you are submitting

Highest

Business Need/Problem:

*Briefly describe the **Need** or **Problem** driving the proposed project and the identification of the Customers and anticipated Consumers of the project's product*

Multiple campus identities and authentication and authorization systems cause confusion for users and duplication of effort in creating systems and providing systems. Lack of automated provisioning and de-provisioning means delays in providing access to services and accounts live after user no longer affiliated with UND.

Solution:

Briefly describe the product of the project that would resolve the Business Need or Problem.

UND would implement standards based identity management (IdM) solution for fewer sign ons and greater assurance for correct identification and authorization of users and timely provisioning and de-provisioning of user accounts.

Consistency/Fit with Organization's Mission:

Describe how the project is consistent with the agency's mission and/or strategic plan. Please provide rationale if it is not.

UND strategic plan Goal One: UND provides coordinated information technology services and applications supporting learning, instruction, research and services and provides for efficient, secure and effective operation of the University.

Anticipated Benefits:

*List all **Anticipated Benefits** resulting directly from the project. Specify the ways there will be measurable improvement of new capabilities?*

- Increase ROI of directory services and access service applications by building on that infrastructure.
- Improve service by shortening time it takes to initiate a user account and to handle forgotten passwords.
- Improved security in authorizing services by plan.
- Shortened time to bring up new applications as identification and authorization components are available through IdM
- Improved security in de-provisioning accounts or authority when university status changes.

Impact of Not Implementing the Project:

Briefly explain the impacts of not implementing this project. If not implemented, what are the impacts on the organization? If not implemented, what are the impacts on other projects, systems, and/or business processes. What benefits will be missed by not doing this project?

Inability to take advantage of installed infrastructure for greater benefits, reducing ROI. Delays and inefficiencies in providing services from continued duplication and redundancy in service provisioning.

Project Budget:

*Provide a **Budget** for the project using the format below. Include any special sources for project funding. Are there grants that will be applied for? Are federal funds available? Is a charge-back to the Customers planned? For example, the project may be funded by a specific line item in the budget.*

Project Budget Format:

- C. Funding Source(s) ITSS appropriated budget
- D. Expense Account Codes to be included are:
 - i. 510000 Salaries and Wages
 - ii. 516000 Benefits
 - iii. 602000 IT Telephone
 - iv. 531000 IT Software/Supplies --
 - v. 581035, 581040, 581045, 591070, 621230, 621235, 623090 IT Contractual Services and Repairs -- \$115,000
 - vi. 551000 IT Equipment under \$5000 --
 - vii. 693000 IT Equipment \$5000 and over--
- C. Project costs not reported in the above IT related account codes (include in-kind costs). Salaries, Wages and Benefits \$60,000

Project Risks:

Identify any risks associated with implementing this project and explain how the risks will be mitigated.

Inability to gain campus acceptance for wide use could be mitigated by getting broad campus participation in planning and implementing system.

Unsatisfactory data definitions making authorization by groups difficult could be mitigated by gaining participation by key information players such as HRMS and Registrar.

QUESTION 1 (of 4): Which of the IT-related issues below are most important for your campus to resolve for its strategic success?

- X Advanced networking Infrastructure
- X Disaster recovery / business continuity
- X Funding IT
- X Governance, organization, and leadership
- X Security and identity management

QUESTION 2 (of 4): Which issues have the potential to become much more significant in the coming year?

- X Digital library / digital content challenges
- X Faculty development, support, and training
- X Instructional / course management systems
- X Legislative compliance and policy development
- X Research Support

QUESTION 3 (of 4): Which issues are you, as an IT leader or administrator, spending most of your time addressing?

- X Advanced networking Infrastructure
- X Funding IT
- X Governance, organization, and leadership
- X Security and identity management
- X Support services / service delivery models

QUESTION 4 (of 4): On which issues is your campus spending the most human and/or financial resources?

- X Administrative / ERP / information systems
- X Advanced networking Infrastructure
- X Instructional / course management systems
- X Other—Maintaining existing infrastructure and services

Submitted 6/15/2006, Dorette Kerian, Interim CIO, UND.
Re-submitted revised 6/16/2006